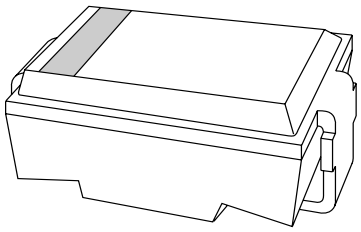
查询PSMA10A供应商



# DATA SHEET



# PSMA8.5A to PSMA78A
Transient voltage suppressor diodes

Product specification
Supersedes data of 1998 Dec 04

1999 Jan 26

Philips
Semiconductors

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# Transient voltage suppressor diodes PSMA8.5A to PSMA78A

## FEATURES

- Glass passivated
- High maximum operating temperature
- Low leakage current
- Excellent stability
- UL 94V-O classified plastic package
- Transient suppressor stand-off voltage range: 8.5 to 78 V for 26 types
- Supplied in 12 mm embossed tape.

## DESCRIPTION

DO-214AC surface mountable package with glass passivated chip.

The well-defined void-free case is of a transfer-moulded thermo-setting plastic.

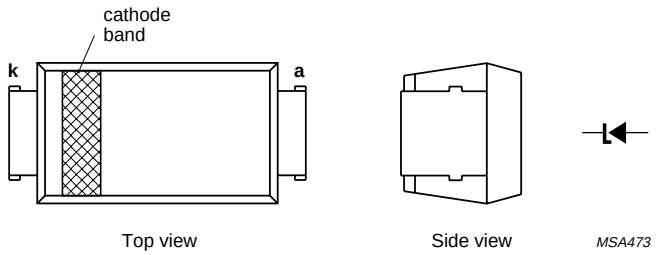



Fig.1 Simplified outline (DO-214AC; SOD106) and symbol.

## LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

| SYMBOL | PARAMETER | CONDITIONS | VALUE | UNIT |
|---|---|---|---|---|
| $P_{RSM}$ | non-repetitive peak reverse power dissipation | 10/1000 μs exponential pulse; $T_j$ = 25 °C prior to surge; see Figs.3 and 5 | 400 | W |

## ELECTRICAL CHARACTERISTICS

### Total series

$T_j$ = 25 °C unless otherwise specified.

| SYMBOL | PARAMETER | CONDITIONS | MIN. | MAX. | UNIT |
|---|---|---|---|---|---|
| $V_F$ | forward voltage | $I_F$ = 0.5 A | – | 1.2 | V |
| $T_{stg}$ | storage temperature | | –65 | +175 | °C |
| $T_j$ | junction temperature | | –65 | +175 | °C |

### Per type

$T_j$ = 25 °C unless otherwise specified.

| DEVICE (note 1) | REVERSE STAND-OFF VOLTAGE | BREAKDOWN VOLTAGE | | REVERSE VOLTAGE (max) @ $I_{RSM}$ (CLAMPING VOLTAGE) | REVERSE SURGE CURRENT (max) | REVERSE LEAKAGE CURRENT (max) @ $V_{RWM}$ |
|---|---|---|---|---|---|---|
| | $V_{RWM}$ (V) | $V_{BR}$ min. (V) | $I_T$ (mA) | $V_{RSM}$ (V) | $I_{RSM}$ (A) | $I_R$ (μA) |
| PSMA8.5A | 8.5 | 9.44 | 1 | 14.4 | 27.8 | 5.0 |
| PSMA9.0A | 9.0 | 10.0 | 1 | 15.4 | 26.0 | 2.5 |
| PSMA10A | 10 | 11.1 | 1 | 17.0 | 23.5 | 2.5 |
| PSMA11A | 11 | 12.2 | 1 | 18.2 | 22.0 | 2.5 |
| PSMA12A | 12 | 13.3 | 1 | 19.9 | 20.1 | 2.5 |
| PSMA13A | 13 | 14.4 | 1 | 21.5 | 18.6 | 2.5 |
| PSMA14A | 14 | 15.6 | 1 | 23.2 | 17.2 | 2.5 |
| PSMA15A | 15 | 16.7 | 1 | 24.4 | 16.4 | 2.5 |
| PSMA16A | 16 | 17.8 | 1 | 26.0 | 15.4 | 2.5 |
| PSMA17A | 17 | 18.9 | 1 | 27.6 | 14.5 | 2.5 |
| PSMA18A | 18 | 20.0 | 1 | 29.2 | 13.7 | 2.5 |
| PSMA20A | 20 | 22.2 | 1 | 32.4 | 12.3 | 2.5 |
| PSMA22A | 22 | 24.4 | 1 | 35.5 | 11.3 | 2.5 |
| PSMA24A | 24 | 26.7 | 1 | 38.9 | 10.3 | 2.5 |
| PSMA26A | 26 | 28.9 | 1 | 42.1 | 9.5 | 2.5 |
| PSMA28A | 28 | 31.1 | 1 | 45.4 | 8.8 | 2.5 |
| PSMA30A | 30 | 33.3 | 1 | 48.4 | 8.3 | 2.5 |
| PSMA33A | 33 | 36.7 | 1 | 53.3 | 7.5 | 2.5 |

| DEVICE (note 1) | REVERSE STAND-OFF VOLTAGE | BREAKDOWN VOLTAGE | | REVERSE VOLTAGE (max) @ $I_{RSM}$ (CLAMPING VOLTAGE) | REVERSE SURGE CURRENT (max) | REVERSE LEAKAGE CURRENT (max) @ $V_{RWM}$ |
|---|---|---|---|---|---|---|
| | $V_{RWM}$ (V) | $V_{BR}$ min. (V) | $I_T$ (mA) | $V_{RSM}$ (V) | $I_{RSM}$ (A) | $I_R$ (μA) |
| PSMA36A | 36 | 40.0 | 1 | 58.1 | 6.9 | 2.5 |
| PSMA40A | 40 | 44.4 | 1 | 64.5 | 6.2 | 2.5 |
| PSMA43A | 43 | 47.8 | 1 | 69.4 | 5.8 | 2.5 |
| PSMA45A | 45 | 50.0 | 1 | 72.2 | 5.5 | 2.5 |
| PSMA48A | 48 | 53.3 | 1 | 77.4 | 5.2 | 2.5 |
| PSMA51A | 51 | 56.7 | 1 | 82.4 | 4.9 | 2.5 |
| PSMA54A | 54 | 60.0 | 1 | 87.1 | 4.6 | 2.5 |
| PSMA58A | 58 | 64.4 | 1 | 93.6 | 4.3 | 2.5 |
| PSMA60A | 60 | 66.7 | 1 | 96.8 | 4.1 | 2.5 |
| PSMA64A | 64 | 71.1 | 1 | 103.0 | 3.9 | 2.5 |
| PSMA70A | 70 | 77.8 | 1 | 113.0 | 3.5 | 2.5 |
| PSMA75A | 75 | 83.3 | 1 | 121.0 | 3.3 | 2.5 |
| PSMA78A | 78 | 86.7 | 1 | 126.0 | 3.2 | 2.5 |

**Note**

1. Tolerance and Voltage Designation: Tolerance designation - The type number listed indicates a tolerance of ±.5%

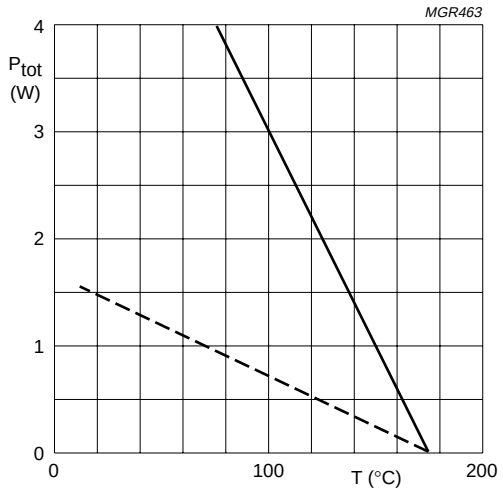
**THERMAL CHARACTERISTICS**

| SYMBOL | PARAMETER | CONDITIONS | VALUE | UNIT |
|---|---|---|---|---|
| $R_{th\ j\text{-}tp}$ | thermal resistance from junction to tie-point | | 25 | K/W |
| $R_{th\ j\text{-}a}$ | thermal resistance from junction to ambient | note 1 | 100 | K/W |
| | | note 2 | 150 | K/W |

**Notes**

1. Device mounted on an $Al_2O_3$ printed-circuit board, 0.7 mm thick; thickness of Cu-layer ≥35 μm, see Fig.4.
2. Device mounted on an epoxy-glass printed-circuit board, 1.5 mm thick; thickness of Cu-layer ≥40 μm, see Fig.4.
   For more information please refer to the *'General part of the associated handbook'*.

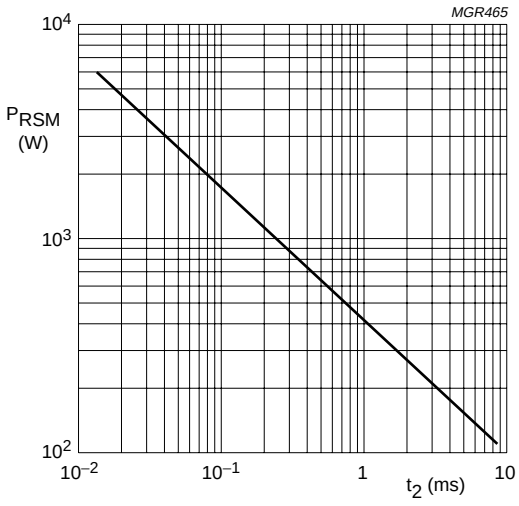
## GRAPHICAL DATA




Solid line: tie-point temperature.

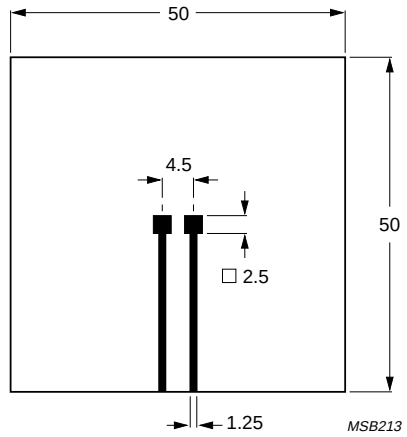
Dotted line: ambient temperature; device mounted on an $Al_2O_3$ printed-circuit board as shown in Fig.4.

Fig.2 Maximum total power dissipation as a function of temperature.



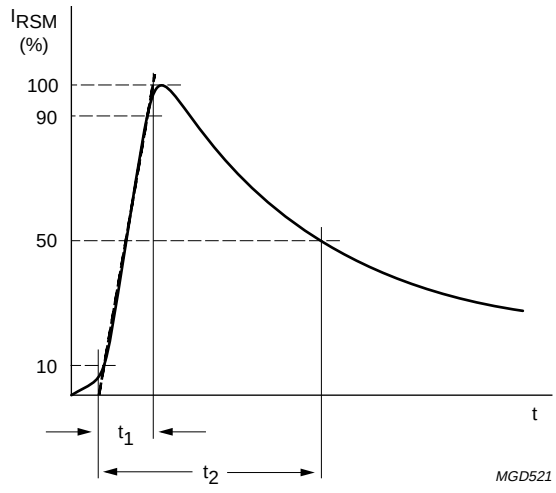

$T_j$ = 25 °C prior to surge.

Fig.3 Maximum non-repetitive peak reverse power dissipation as a function of pulse duration (exponential pulse).




Dimensions in mm.

Fig.4 Printed-circuit board for surface mounting.




In accordance with *"IEC 60-1, Section 8"*.

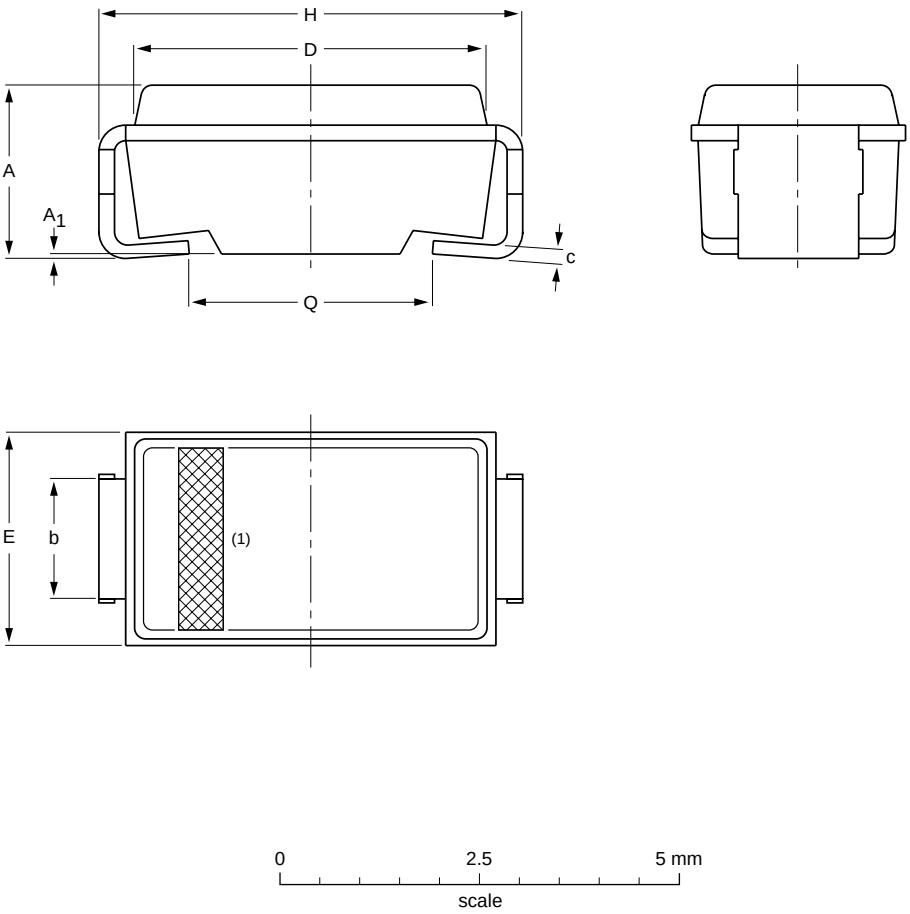
$t_1$ = 10 µs.

$t_2$ = 1000 µs.

Fig.5 Non-repetitive peak reverse current pulse definition.

## PACKAGE OUTLINE

**Transfer-moulded thermo-setting plastic small rectangular surface mounted package; 2 connectors** **SOD106**




**DIMENSIONS (mm are the original dimensions)**

| UNIT | A | $A_1$ | b | c | D | E | H | Q |
|---|---|---|---|---|---|---|---|---|
| mm | 2.3<br>2.0 | 0.05 | 1.6<br>1.4 | 0.2 | 4.5<br>4.3 | 2.8<br>2.4 | 5.5<br>5.1 | 3.3<br>2.7 |

**Note**

1. The marking band indicates the cathode.

| OUTLINE VERSION | REFERENCES | | | | EUROPEAN PROJECTION | ISSUE DATE |
|---|---|---|---|---|---|---|
| | IEC | JEDEC | EIAJ | | | |
| SOD106 | | DO-214AC | | | | 97-06-09 |

## DEFINITIONS

| **Data sheet status** | |
|---|---|
| Objective specification | This data sheet contains target or goal specifications for product development. |
| Preliminary specification | This data sheet contains preliminary data; supplementary data may be published later. |
| Product specification | This data sheet contains final product specifications. |
| **Limiting values** | |
| Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability. | |
| **Application information** | |
| Where application information is given, it is advisory and does not form part of the specification. | |

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